Republic of the Philippines
COMMISSION ON ELECTIONS
M a n i l a

SECTION VII
Technical Specifications

LEASE WITH OPTION TO PURCHASE OF ELECTION MANAGEMENT SYSTEM (EMS) AND PRECINCT-BASED OPTICAL MARK READER (OMR) OR OPTICAL SCAN (OP-SCAN) SYSTEM FOR THE 2016 NATIONAL AND LOCAL ELECTIONS

BAC Reference No.01-2014-AES-OMR

BIDS AND AWARDS COMMITTEE

2015

SECTION VII
Technical Specifications

INSTRUCTIONS: Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered.

Statements of "Comply" or "Not Comply" **must be supported by evidence in a Bidder's Bid and cross-referenced to that evidence**. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate.

A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of **ITB** Clause 3.1(a)(ii) and/or **GCC** Clause 2.1(a)(ii).

REQUIREMENTS / SPECIFICATIONS	**Statement of Compliance** *Just state "Comply" or "Not Comply"*	**Specific Reference** *in Bidder's Bid Supporting Statement of Compliance*
COMPONENT 1: Election Management System (EMS) and Precinct-Based Optical Mark Reader (OMR) or Optical Scan (Op-Scan) System		
1. The Bidder shall show proof of compliance to the following minimum technical specifications for the required Automated Election System (AES) for the 2016 National and Local Elections (NLE).		
2. The Bidder's claims of compliance shall be supported by documentary evidence and shall be verified and validated by a product and/or systems test to be conducted by COMELEC, as applicable.		
3. The EMS and OMR/OpScan System shall		

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comply with the minimum system capabilities as indicated in RA 9369, as follows:		
3.1 Adequate security against unauthorized access;		
3.2 Accuracy in recording and reading of votes as well as in the tabulation, consolidation/canvassing, electronic transmission, and storage of results;		
3.3 Error recovery in case of non-catastrophic failure of device;		
3.4 System integrity which ensures physical stability and functioning of the vote recording and counting process;		
3.5 Provision for voter verified paper audit trail;		
3.6 System auditability which provides supporting documentation for verifying the correctness of reported election results;		
3.7 An election management system for preparing ballots and programs for use in the casting and counting of votes and to consolidate, report and display election result in the shortest time possible;		
3.8 Accessibility to illiterates and disabled voters;		
3.9 Vote tabulating program for election, referendum or plebiscite;		
3.10 Accurate ballot counters;		
3.11 Data retention provision;		
3.12 Provide for the safekeeping, storing and archiving of physical or paper resource used in the election process;		
3.13 Utilize or generate official ballots as herein		

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defined;		
3.14 Provide the voter a system of verification to find out whether or not the machine has registered his choice;		
3.15 Configure access control for sensitive system data and functions;		
A. Election Management System (EMS)		
1. The EMS shall refer to a single unified software application which shall enable the COMELEC to completely and fully manage all pre-election data requirements for election configuration purposes, without the use of other software unless otherwise specified herein.		
2. The EMS shall comply with the following minimum requirements, which shall be able to be demonstrated by the bidder as compliant during the submission of its Bid, unless specified as a customization requirement.		
3. The EMS shall have the following general capabilities:		
3.1 The EMS shall have system administration utilities as a general capability, which shall be used in managing user accounts, rights and privileges, including system and audit log files monitoring and backup files generation, among others.		
3.2 The EMS shall have pre-election data management as a general capability, which shall be used in managing all data to be used for election purposes, including data import of election data files from existing COMELEC software		

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applications.		
3.3 The EMS shall have election configuration files management and generation as a general capability, which shall be used in generating the location-specific configuration files for each VCM.		
3.4 The EMS shall have ballot definition management and ballot face generation as a general capability, which shall be used in managing the generation of the ballot faces.		
3.5 The EMS shall have machine configuration management as a general capability, which shall be used in turning on or off certain VCM functionalities.		
3.6 The EMS shall have election results report format management as a general capability, which shall be used in managing all report formats to be generated by the VCM.		
4. The EMS shall be a single integrated system where all functionalities are made available from one user interface (UI) only.		
4.1 The EMS shall completely and fully provide for all election data management requirements - from importing or encoding of data to generation of all election configuration files, ballot faces, passwords and all reports.		
4.2 The EMS shall not make use of other additional computerized applications or scripts that shall be run from outside of it to execute these data management functionalities.		

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5. The EMS shall use a database management system (DBMS) that is compatible with the current DBMS of the COMELEC, such as Oracle, MySQL or MS SQL.		
6. The EMS shall log all user activities in the system, together with the date-and-time stamp for each.		
7. The EMS shall be able to execute the following data or record management functionalities based on user access rights and privileges:		
7.1 Based on user access rights and privileges, the EMS shall be able to import, create or add new records into it.		
7.2 Based on user access rights and privileges, the EMS shall be able to read, display or view, and print records.		
7.3 Based on user access rights and privileges, the EMS shall be able to update or edit records.		
7.4 Based on user access rights and privileges, the EMS shall be able to delete or remove records.		
7.5 Based on user access rights and privileges, the EMS user shall be able to create VCM configuration files, passwords & usernames, ballot faces and other such requirements to be indicated in the Systems Customization Phase.		
8. The EMS shall enable COMELEC to manage the following election data, which shall include the user capability to create, retrieve/read, update, and delete (CRUD) records, based on assigned user rights and privileges:		

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8.1 The EMS shall enable COMELEC to manage its election data on geographical sub-divisions, such as regions, provinces, cities, municipalities, and barangays.		
8.2 The EMS shall enable COMELEC to manage its election data on voting jurisdictions, such as legislative districts, provincial districts, regional districts, councilor districts, and post/embassies (which is applicable for participating Overseas Voting (OV) countries only), and precincts.		
8.3 The EMS shall enable COMELEC to manage its election data on number of registered voters per established precinct.		
8.4 The EMS shall enable COMELEC to manage its election data on number of registered voters per clustered precinct.		
8.5 The EMS shall enable COMELEC to manage its election data on elective positions and number of seats to be voted for per position.		
8.6 The EMS shall enable COMELEC to manage its election data on candidate information, such as full name, nickname/stage name, elective position, gender, political party affiliation, jurisdiction where the candidate intends to run.		
8.7 The EMS shall enable COMELEC to manage Arabic text, which shall be used to show the equivalent Arabic translation of the English label of elective positions in the ballots for he Autonomous Region in		

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Muslim Mindanao (ARMM) areas.		
8.8 The EMS shall enable COMELEC to manage title and date of elections as election data.		
8.9 The EMS shall enable COMELEC to manage data on members of the Boards of Election Inspectors (BEI), such as, but not limited to the following:		
8.9.1 The EMS shall enable COMELEC to manage data on BEI members' full names.		
8.9.2 The EMS shall enable COMELEC to manage data on BEI members' positions in the Board (such as BEI Chairman, BEI Poll Clerk, BEI Member, VCM Technical Support).		
8.9.3 The EMS shall enable COMELEC to manage data on BEI members' area of assignment.		
8.9.4 The EMS shall enable COMELEC to manage data on BEI members' user identification (ID)/name and passwords.		
8.9.5 The EMS shall enable COMELEC to manage data on BEI members' digital certificates or private/public key pairs.		
8.9.6 As a customization requirement, the EMS shall enable COMELEC to manage other BEI members' data that shall be needed in the configuration of ballots and VCMs.		
9. The EMS shall be capable of importing pre-election configuration data from existing COMELEC MySQL and CSV (or comma-		

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separated values) data files as part of its data management capabilities.		
9.1 The EMS shall be also capable of managing pre-election configuration data by direct entry.		
9.2 The EMS shall have a built-in functionality for verification and validation of the integrity and accuracy of data before allowing data import.		
9.3 The EMS shall have a reporting functionality to display the generated results of the data verification and validation after data import which shall include such information as summary and breakdown of related statistical information.		
10. The EMS shall allow for the user-configuration of the following information:		
10.1 The EMS shall allow for the user-configuration of the number of security keys or users needed to access the functionalities of VCM.		
10.2 The EMS shall allow for the user-configuration of the transmission destination of each position in the VCM.		
11. The EMS shall have a functionality for turning on/off or enabling/disabling the vote verification feature of the VCM.		
11.1 The EMS shall be capable of enabling or disabling the VCM functionality of displaying a message indicating the affected position and candidate when an ambiguous mark is encountered in a scanned ballot.		

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12. The EMS shall provide a functionality for the creation and management of report templates for use in the reports to be generated by the VCM, such as the Initialization Report, the Election Returns (ER), the VCM Statistical Report, the Electronic Transmission Report and the VCM Audit Log Report.		
12.1 The EMS shall provide functionality for the management of the VCM report templates, which shall include, among others, the modification of the title of report, and the following report management functionalities.		
12.2 The EMS shall also allow for the option to import report templates from MSWord files, from ODF formats (such as Libre Office Writer files) and from plain text files.		
12.3 The EMS shall also allow the editing of entries or contents in said report templates.		
12.3.1 The EMS shall specifically allow the editing of elective positions to be included in or excluded from the report templates.		
12.3.2 The EMS shall specifically allow the editing of the wording of the certification in the report templates, together with other textual information.		
12.3.3 The EMS shall specifically allow the editing of the report format design, such as the placement or positioning of information, in the report template.		

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12.3.4 The EMS shall specifically allow the editing of the data fields for inclusion or exclusion in the report templates.		
12.3.5 The EMS shall also allow the editing of other information in the report templates, as may be indicated in the Systems Customization phase.		
12.4 The EMS shall allow for the editing or modification of report entries.		
13. The EMS shall be able to generate the election configuration files needed to configure the VCM.		
13.1 The EMS shall be able to automatically generate location-specific configuration files, which shall be able to restrict the votes that can be accepted and the results that can be generated by each machine, depending on the configured location.		
13.2 The EMS-generated configuration files shall include the date and title of the elections, the precinct of assignment, together with information on its corresponding region, province, city/municipality or post/embassy, barangay, and voting center, candidate information, including digital certificates, and other such data.		
14. The EMS shall be able to import COMELEC's pre-election data without manually dividing the files into parts.		
14.1 For the User Acceptance Test (UAT), the winning bidder shall be able to demonstrate the capability of its EMS system to import a large data file with a		

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minimum file size of 5GB without manually dividing it into smaller parts.		
14.2 The winning Bidder shall provide the appropriate and sufficient software and hardware to COMELEC which shall be able to accommodate the management of the EMS data for the purpose without adversely impacting data processing performance, subject to the acceptance of COMELEC.		
14.2.1 If at any time during project implementation, all provided hardware and software shall be verified by COMELEC to be insufficient to meet COMELEC's data processing needs for the purpose, the winning Bidder shall be liable to upgrade or replace the same at no extra cost to COMELEC and without causing substantial delay in its Implementation Calendar.		
15. The EMS shall have a ballot definition module which shall have the following minimum functionalities:		
15.1 The EMS's ballot definition module shall be able to automatically create the ballot faces for VCM.		
15.2 The EMS's ballot definition module shall enable its user to preview the automatically generated ballot faces for verification purposes, based on assigned user rights and privileges.		
15.3 The EMS shall automatically generate one ballot face for each voting jurisdiction with		

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a common set of candidates from the national level down to the city/municipal level or councilor district level, as applicable.		
15.4 The EMS shall automatically create a unique identifier for each clustered precinct.		
15.5 The EMS shall be customized to be able to accommodate the final ballot design and layout as to final specifications of the COMELEC.		
15.6 The EMS's ballot definition module shall be able to accommodate the insertion or provision of Arabic translation of the titles of the offices to be voted for, in addition to and immediately below the English titles.		
15.7 The EMS shall create as many ballot faces as there are cities/municipalities and councilor districts for the NLE.		
16. The EMS shall be capable of maintaining an immutable audit log which shall contain the following information:		
16.1 The EMS audit log shall contain information on the unique EMS machine ID from which the logged EMS activity was executed or event happened.		
16.2 The EMS audit log shall contain information on the unique user ID for each EMS user.		
16.3 The EMS audit log shall contain information on the specific date and time of the logged event.		
16.4 The EMS audit log shall contain information on the specific type of event		

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such as whether system-generated, user activity, and error occurrence.		
16.5 The EMS audit log shall contain information on the specific EMS user action or activity, including date and time of sign in and sign out, and specific access and action done on EMS records.		
16.6 The EMS audit log shall contain information on the specific error messages for errors encountered by the system, including system and user errors.		
17. The EMS shall write its log entries in such a way that they can be easily understood by its regular users and shall not make use of coded language, without readily providing the equivalent meaning.		
17.1 The EMS shall enable its user to select a period of date/time to display the concerned contents of the log files.		
18. The EMS shall allow the export of its databases or data tables containing the information of these reports in MySQL or CSV file format.		
19. The EMS shall have a built-in system functionality to allow back-up of all data in the EMS server.		
19.1 The EMS shall generate the back-up file in a data format that can readily be re-used by the system for data recovery purposes.		
19.2 The EMS shall be able to restore the back-up file without its user having to manually regenerate any of the needed files to continue working on the EMS.		
20. The EMS shall be able to assign a unique		

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ballot ID for each ballot face.		
21. The EMS shall have a built-in functionality to display the hash code for the system using at least SHA1 cryptographic hash function which was generated for it by an external hash code generator.		
21.1 The EMS shall be customizable to accommodate the specific location in its UI screens of the generated hash code, and the duration of availability for display.		
21.2 The EMS shall be able to print this hash code on all reports to be generated by the system.		
22. The winning Bidder shall provide a separate application which shall be capable of extracting the generated hash code for the EMS and validating the integrity of the same.		
22.1 The source codes of the hash code extractor and validator for the EMS shall be turned-over to COMELEC before its implementation, including proper source code and instructional documentation manuals, and training on understanding the same.		
23. The winning Bidder shall provide for a mechanism to verify whether the positions of the ovals or marking spaces and the security markings on the ballot are correct.		
24. The EMS shall be able to handle all lengths of candidate names without truncating the same, and display them on the ballot accordingly in a readable manner.		
25. The EMS shall be able to export the ballot face to PDF format and to any format needed by		

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the ballot printing system.		
26. The EMS shall be capable of automatically generating the ballot designs with the following minimum required features:		
26.1 The EMS shall enable the names of the candidates to be pre-printed on the ballot.		
26.2 The EMS shall enable the automatic generation of one-sheet paper ballots per voter, based on the number of registered voters.		
26.3 The EMS shall enable the automatic generation of paper ballots that utilizes both sides of the ballot sheet.		
26.4 The EMS shall enable each side of the automatically generated ballot sheet to be able to accommodate at least 350 candidate names, including the positions, with a minimum readable Arial font type and font size of 10, in addition to other mandatory information required by law.		
26.5 The EMS shall be capable to generate the ballot with machine-readable information that shall identify the ballot jurisdiction codes and its ballot code.		
26.6 The EMS shall be capable to designate a physical space in the ballot for additional visual security markings as specified by the COMELEC, the National Printing Office (NPO), or the *BangkoSentralngPilipinas* (BSP), and which may not be machine-detectable.		
26.7 The EMS shall ensure that the presence of these visual security markings shall not deter the system's capability for accurate		

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counting of votes on the ballots.		
27. The base Source Code of the EMS shall be made available to COMELEC not later than 60 days from the issuance of the Notice of Award for purposes of Source Code Review by interested parties, subject to rules and regulations set by COMELEC.		
28. As a minimum requirement, the EMS shall be capable of managing pre-election configuration data by importing the following data from COMELEC's current EMS (COMELEC-EMS).		
28.1 As a minimum requirement, the EMS shall be capable of managing pre-election configuration data by importing COMELEC-EMS data on geographical subdivisions, such as regions, provinces, cities, municipalities, and barangays.		
28.2 As a minimum requirement, the EMS shall be capable of managing pre-election configuration data by importing COMELEC-EMS data on voting jurisdictions, such as legislative districts, provincial districts, regional districts, councilor districts, and post/embassies (which is applicable for participating Overseas Voting (OV) countries only), and precincts.		
28.3 As a minimum requirement, the EMS shall be capable of managing pre-election configuration data by importing COMELEC-EMS data on the number of registered voters per established precinct.		
28.4 As a minimum requirement, the EMS shall		

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be capable of managing pre-election configuration data by importing COMELEC-EMS data on the number of registered voters per clustered precinct.		
28.5 As a minimum requirement, the EMS shall be capable of managing pre-election configuration data by importing COMELEC-EMS data on elective positions and number of seats to be voted for per position.		
28.6 As a minimum requirement, the EMS shall be capable of managing pre-election configuration data by importing COMELEC-EMS data on candidate information, such as full name, nickname/stage name, elective position, gender, political party affiliation, and jurisdiction where he intends to run.		
28.7 As a minimum requirement, the EMS shall be capable of managing pre-election configuration data by importing COMELEC-EMS data on Arabic text.		
29. As a minimum requirement, the EMS shall require authorization and authentication of all users with the use of unique usernames and user-modifiable passwords, at the very least, with multiple user access levels.		
30. All indicated EMS system functionalities shall be made available for access from EMS workstations or clients, and not from the server.		
31. The Bidder shall submit with its bid proposal the total number of lines of code of all proposed systems which would be the subject		

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of the source code review, together with a breakdown of the corresponding lines of code for all related components.		
32. The EMS shall be customizable in accordance with the requirements of this TOR.		
33. The EMS shall be required to comply the following **minimum customizable functionalities** to be tested and verified during the scheduled systems customization period, as indicated in the 2016 NLE Implementation Calendar, or before the systems acceptance:		
33.1 The EMS shall not allow edit, delete or add to the data imported from COMELEC-EMS created configuration.		
33.2 The EMS shall able to distinguish if data that it is managing came from the COMELEC-EMS and shall not allow these data to be modified.		
33.3 The EMS shall only allow modification of data that have been created in it or inputted to it, including all data that is not a part of the imported data from the COMELEC-EMS.		
33.4 The EMS shall employ at least three (3) levels of user access, which shall be categorized at the very least, as follows:		
33.4.1 The EMS shall employ a **regular** user level, which shall be assigned with basic computer operational roles, such as generation of approved configuration files, VCM usernames and passwords, and viewing of EMS		

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data, or as may be assigned or revoked by designated EMS Administrators.		
33.4.2 The EMS shall employ an **intermediate** user level, which shall be assigned with regular user roles, correction of imported data, and approval of configuration files, or as may be assigned or revoked by designated EMS Administrators.		
33.4.3 The EMS shall employ an **administrator** user level, which shall be assigned with all regular and intermediate user roles, and reference file management roles, including data import, together with monitoring roles, and assigning or revoking of user rights and privileges.		
33.5 The EMS shall be able to generate the following reports as of date/time of report generation.		
33.5.1 The EMS shall be able to generate multi-level (i.e. national, regional, provincial, and city/municipal) statistical reports on generated (and not yet generated) **ballot faces** per date, with summary and detailed listing, based on the final formats to be approved by COMELEC.		
33.5.2 The EMS shall be able to generate multi-level (i.e. national, regional, provincial, and city/municipal) statistical reports on generated (and not yet generated) **machine configuration files** per date for all machines, with summary and detailed		

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listing, based on the final formats to be approved by COMELEC.		
33.5.3 The EMS shall be able to generate multi-level (i.e. national, regional, provincial, and city/municipal) statistical reports on generated (and not yet generated) **machine usernames and/or passwords**, with summary and detailed listing, based on the final formats to be approved by COMELEC.		
33.5.4 The EMS shall be able to generate multi-level lists of **voting jurisdictions**, with summary and detailed statistical reports, based on the final formats to be approved by COMELEC.		
33.5.5 The EMS shall be able to generate multi-level lists of **elective positions** per voting jurisdiction, with summary and detailed statistical reports, based on the final formats to be approved by COMELEC.		
33.5.6 The EMS shall be able to generate multi-level lists of **candidates** per position per voting jurisdiction, with summary and detailed statistical reports, based on the final formats to be approved by COMELEC.		
33.6 The EMS shall be easy to use and operate, and shall make use of a graphical user interface (GUI).		
33.6.1 The EMS shall have such features as understandable and helpful screen prompts, descriptive error messages with corresponding needed corrective		

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actions, and help screens.		
33.6.1.1 The EMS on-screen messages and instructions shall be subject to approval and modification by COMELEC in view of the ease-of-use requirement.		
33.6.1.2 The EMS shall have a message format management functionality, which the COMELEC may use to modify on-screen messages.		
33.6.2 The EMS shall have a built-in user or operation manual, which shall be accessible from a Help menu, and which shall provide the needed instructions on how to use and operate the system.		
33.6.2.1 The contents of the EMS built-in user or operation manual, and its wordings, shall be subject to approval and modification by the COMELEC.		
33.6.3 The EMS shall be easy to use in such a way that by just following the instructions in its built-in User Manual, a user shall be able to successfully create all configurations, including the ballot faces, and without manual intervention from outside the system.		
33.6.3.1 For this purpose, the EMS built-in User Manual shall contain complete, accurate and understandable information and instructions on ballot configuration, machine		

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configuration, data import, error management, systems administration.		
33.7 EMS user rights and privileges shall be different for each user access level, with a basic set of permissions allowed per level.		
33.7.1 As a customization requirement, the EMS shall enable the addition of selected user rights and privileges from other user access levels.		
33.8 The EMS shall be able to generate and display imported data and set configurations, together with a summary of the results, for verification purposes.		
33.8.1 The EMS shall provide different options for filtering display or views of the imported data and set configurations to facilitate verification, such as, but not limited to the following:		
33.8.1.1 Based on the imported data, the EMS shall provide multi-level (i.e. national, regional, provincial, city/municipal)lists (with statistical reports) of **geographical divisions**, with the underlying subdivisions, and the number of registered voters.		
33.8.1.2 Based on the imported data, the EMS shall provide multi-level (i.e. national, regional, provincial, city/municipal) lists (with statistical reports) of **voting jurisdictions**, with the number of		

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	registered voters.		
33.8.1.3	Based on the imported data, the EMS shall provide multi-level (i.e. national, regional, provincial, city/municipal) lists (with statistical reports) of **elective positions and number of seats** to vote for each position, together with other positions that may be added before the elections.		
33.8.1.4	Based on the imported data, the EMS shall provide multi-level (i.e. national, regional, provincial, city/municipal, district) lists (with statistical reports) of **candidates** per voting jurisdiction and for other geographic subdivisions that may be added before the elections.		
33.8.1.5	Based on the imported data, the EMS shall provide multi-level (i.e. national, regional, provincial, city/municipal, district) lists (with statistical reports) of **established precincts**, with number of registered voters.		
33.8.1.6	Based on the imported data, the EMS shall provide multi-level (i.e. national, regional, provincial, city/municipal, district) lists (with statistical reports) of **clustered precincts**, with number of registered voters.		
33.8.1.7	Based on the imported data, the EMS shall provide multi-level (i.e. national, regional, provincial,		

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city/municipal, district) lists (with statistical reports) of **clustered precincts, with established precincts included in the cluster**, together with number of registered voters.		
33.9 The EMS shall have a functionality for selecting information to add to or remove from the information available in all of the EMS displays, screens, and reports, based on assigned user rights and privileges.		
33.10 The EMS shall have a functionality for renaming labels of information available in EMS displays, screens, and reports, based on assigned user rights and privileges, to suit COMELEC terminologies and how they are used.		
33.11 The EMS shall have an automatic built-in functionality to ensure and verify that the ballot and machine configurations are always matched.		
33.11.1 The EMS shall ensure that any changes to a specific ballot configuration shall automatically regenerate the machine configuration with the ballot face, and vice-versa, with informational prompt to the user.		
33.12 The EMS shall be able to generate a checklist for visual monitoring of the status of generation of ballot faces, and of machine configuration files, as of report generation.		
33.13 The winning bidder shall be further		

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required to customize the EMS in order to be compatible with COMELEC's existing Consolidation/Canvassing System (CCS) at no additional cost to the Commission.		
34. All related requirements by the EMS which are needed to make it fully operational for the entire duration of the project (including requirements for all tests, FTS, training, public demo, certification, E-Day) shall be included in the proposal/offer, including the software and hardware, back-up power supply, all other supplies and materials, printers, and other equipment and peripherals, consumables and other related services.		
34.1 The Bidder shall make use of the Financial Proposal Template to indicate a detailed listing of the items, with breakdown of costs, in its proposal.		
34.2 The winning Bidder shall not demand for additional payment from COMELEC to procure additional EMS requirements during Project Implementation for items that it may have overlooked in its Bid Proposal.		
34.3 The winning Bidder shall bear all additional costs for EMS-related goods and services that it failed to include in its proposal, but shall be deemed required to be provided as part of the "all requirements" inclusivity specification.		
35. After Project implementation, in case the COMELEC decides to exercise the option to		

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purchase the EMS system, the COMELEC shall be free to use or modify the system as it sees fit without incurring any liability from the winning Bidder.		
36. If COMELEC exercises the option to purchase the OMR/OpScan system with its EMS, the winning Bidder shall customize its EMS to be capable of generating the configuration files for the old PCOS Machines at no additional cost to COMELEC.		
B. **Precinct-Based Optical Mark Reader (OMR) or Optical Scan (Op-Scan) System for the Vote Counting Machine (VCM)**		
1. The OMR/OpScan system shall comply with the following minimum requirements which shall be able to be demonstrated by the bidder as compliant during the submission of its Bid, unless specified as a customization requirement.		
2. The OMR/OpScan system shall use Optical Mark Reader (OMR) or Optical Scan (OpScan) technology.		
3. The OMR/OpScan system shall make use of paper ballots with spaces for indicating the vote by shading an oval or any space provided for such purpose.		
3.1 The OMR/OpScan system may make use of ovals or other shapes (such as squares, circles, or broken arrows) as marking spaces, as long as the marks can be recognized by the proposed VCM.		
4. The OMR/OpScan system shall be able to recognize ink marks on the ballot and count		

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the vorresponding votes accurately.		
5. The OMR/OpScan system shall allow for the manual feeding of a ballot into the VCM.		
6. The OMR/OpScan system's hardware shall have a ballot scanner.		
6.1 The OMR/OpScan system's ballot scanner shall be capable of scanning the front and back of a ballot in one pass in any portrait orientation.		
6.2 The OMR/OpScan system's ballot scanner shall be capable of scanning a ballot sheet at the speed of at least 70 mm per second.		
6.3 The OMR/OpScan system's ballot scanner shall be capable of scanning a ballot at a resolution of at least 200 dots per inch (dpi).		
6.4 The OMR/OpScan system's ballot scanner shall be capable of scanning a ballot in at least 4-bit grayscale image.		
6.4.1 For verification purposes, the Bidder shall submit samples of 4-bit grayscale image ballots, which shall be tested during the Systems Evaluation as part of the Post-Qualification procedure.		
6.4.2 The Bidder shall submit documentary proof that the said sample ballot uses a 4-bit grayscale image.		
6.4.3 The compliance to the ballot's 4-bit grayscale image requirement shall be subject to verification by the DOST.		
6.5 The OMR/OpScan system's ballot scanner shall be capable of integrity checking or self-checking of the physical condition of the scanner, and which shall alert or		

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prompt its user that the scanner is not in good condition.		
6.6 This functionality shall be actually demonstrated during the Systems Evaluation.		
7. The OMR/OpScan system's hardware shall have a display panel that is capable to display customizable messages or prompts of each stage of the process of execution, including prompts and messages for user interaction purposes.		
8. The OMR/OpScan system's hardware shall have printing capability, which shall be built-in into the system.		
9. The OMR/OpScan system's hardware shall have electronic transmission capability, which may or may not be integrated into system, and which shall enable the electronic transmission of election results to EMS-configured destinations (such as to the designated CCS units and central server, transparency server and backup server) via wired or wireless technologies.		
9.1 The OMR/OpScan system shall be capable of using GSM, GPRS, Ethernet, VSAT and other transmission technologies.		
9.2 The OMR/OpScan system shall be capable of determining whether the transmission has been successfully sent or of confirming from the intended recipient the receipt of the transmitted election results.		
9.2.1 As a customization requirement, the specific EVM transmission notification to employ on e-Day shall be		

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configurable in the EMS.		
10. The OMR/OpScan system's hardware shall be able to make use of alternative power sources, such as batteries, or power generators, which shall enable the VCM to fully operate for at least 14 hours.		
10.1 For this purpose, the winning Bidder shall provide the required alternative power source for each VCM, together with the corresponding charging equipment for batteries, the cost of fuel for power batteries, or other incidental expenses needed for operating the same.		
10.1.1 If batteries shall be provided, the winning Bidder shall ensure that the batteries are fully charged prior to deployment from central warehouse, and shall shoulder the cost for the same.		
10.1.2 If power generators shall be provided, the winning Bidder shall also shoulder the cost of the fuel in its Bid.		
10.1.3 In case other alternative power sources shall be provided, the winning Bidder shall also shoulder all related costs in order to readily use said power sources.		
10.2 The OMR/OpScan system shall enable the seamless transfer of power supply from the main source to alternative power.		
11. For purposes of the User Acceptance Test (UAT), the OMR/OpScan system shall detect the voter's choice as marked on the ballot with		

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an accuracy rating of not more than 1 error out of 20,000 marks (or 99.995% accuracy rating).		
11.1 For purposes of testing the OMR/OpScan system's accuracy rating during the Systems Evaluation, the Bidder shall submit test ballots with 20,000 valid marks for completely filled up positions. (This means that there shall be no under-voted, over-voted or abstained positions, including ambiguous marks.)		
12. The OMR/OpScan system shall have a built-in functionality to accept election configuration data from the EMS, such as voting jurisdiction data and candidate information, digital certificates, and other needed configuration data.		
12.1 The OMR/OpScan system shall make use of e-Day-specific information that shall NOT be hardcoded into the system, but shall be referred to from external reference files or configuration files from the EMS.		
12.2 The OMR/OpScan system functionality for machine configuration shall be accessed only by a system user with Administrator access level.		
13. The OMR/OpScan system shall be configurable for use at the precinct level.		
13.1 The OMR/OpScan system shall allow the accurate counting of ballots intended for an established or a clustered precinct, based on its configuration.		
13.2 The configuration file's information shall include the date and title of the elections and the precinct for which the VCM was		

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configured, together with information on its corresponding region, province, city/municipality or post/embassy, barangay, and voting center.		
14. The OMR/OpScan system shall be able to generate an EML file in the data format to be specified by COMELEC. (For this purpose the COMELEC shall provide the template of the EML file to the bidders.)		
15. The OMR/OpScan system shall be able to digitally capture the image of both sides of the cast ballot.		
15.1 The OMR/OpScan system shall store in an encrypted format the digital images of the ballots assigned to a precinct for at least 1,600 ballot images, i.e. for 800 ballots, with back-to-back printing.		
15.2 The OMR/OpScan system shall generate the ballot image that shall be accompanied with information on the ballot ID, machine ID, candidates voted per position, including remarks on number of under-votes, over-votes or abstentions per position.		
16. The OMR/OpScan system shall be accessible to illiterates and persons with disabilities (PWD).		
16.1 For this purpose, the winning Bidder shall provide the number of peripherals required and the activation of the needed OMR functionalities in order to have the concerned VCM readily accessible for use by illiterates and PWDs on e-Day.		
16.2 The Bidder shall demonstrate this		

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accessibility functionality of its OMR/OpScan system during the Systems Evaluation.		
17. The OMR/OpScan system shall protect the sanctity and secrecy of the voter's vote by ensuring that the record of the vote shall not be traced to the voter.		
17.1 This functionality of the OMR/OpScan system shall be demonstrated during the Systems Evaluation.		
18. The OMR/OpScan system shall employ error handling procedures, including error recovery features, the use of error prompts and other related instructions to recover from an error.		
18.1 The Bidder shall actually demonstrate this error handling functionality of the OMR/OpScan system during the Systems Evaluation.		
19. The OMR/OpScan system shall have a vote verification feature which shall display and print the voter's choices, which can be enabled or disabled in the configuration using the EMS.		
20. The OMR/OpScan system shall be able to detect a mark on a designated spot of the ballot and shall be evaluated based on an EMS-configured threshold.		
21. The OMR/OpScan system shall employ sufficient security measures with regard to system access.		
21.1 As a security access requirement, the OMR/OpScan system shall make use of unique user name/ID and password for each member of the BEI as a VCM user,		

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which shall identify the concerned BEI Member and shall likewise be recorded in all audit log entries.		
21.2 As a security access requirement, the OMR/OpScan system shall make use of physical security devices, such as but not limited to USB flash drives, with digital certificates for each BEI Member.		
22. The OMR/OpScan system shall have appropriate and necessary safeguards to determine the authenticity of a ballot, such as, but not limited to, the use of bar codes, holograms, color shifting ink, micro printing, and ultra-violet (UV) ink marks, to be provided on the ballot.		
22.1 The Bidder shall submit with its bid proposal a description of the inherent security features on the printed ballot apart from the abovementioned security features required by the COMELEC.		
22.2 For the Systems Evaluation, the Bidder shall also specifically demonstrate its OMR/OpScan system's capability to detect the absence of such security features on some of its test ballots, and display a prompt on its screen of such occurrence.		
22.3 For purposes of the Systems Evaluation during Post Qualification, the Bidder shall demonstrate its OMR/OpScan system's capability to determine the authenticity of its ballot using at least two (2) security features.		
22.4 The OMR/OpScan system shall enable the provision of a space on the ballot for		

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printing a visual NPO or BSP security marking.		
23. The OMR/OpScan system shall be able to detect and reject fake or spurious, and previously–scanned ballots, and display the specific reason for such rejection, and record the same in the audit log.		
23.1 If a mark cannot be determined by the OMR/OpScan system as a "valid mark" or "no mark", it shall have the capability to display a message indicating the position and candidate affected by this ambiguity.		
23.1.1 In such case, the OMR/OpScan system shall prompt the voter on whether to cast or return the ballot for correction.		
23.1.1.1 The OMR/OpScan system shall not allow such ballot to be pulled out from the VCM until such time that the voter specifically decides to return it.		
23.1.1.2 The OMR/OpScan system shall not allow such ballot to be automatically accepted by the VCM until such time that the voter specifically decides to cast it.		
23.1.2 In case a ballot with a VCM-identified ambiguous mark is opted to be cast, the OMR/OpScansystem shall not count such mark as a vote.		
23.1.3 The EMS shall be capable of enabling or disabling this functionality.		
24. The OMR/OpScan system shall require authorization from the configuration-specified number of BEI members through the use of		

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unique user name/ID, with PIN/password, and the assigned physical security device.		
25. In case of implementation of Public Key Infrastructure (PKI), the OMR/OpScan System shall be capable to authenticate from a pool of at least five (5) BEI members for each precinct, as indicated in the EMS configuration, and to digitally sign the precinct results before printing the ER and transmitting the same to the designated destination.		
25.1 This functionality shall be demonstrated during Systems Evaluation.		
26. The OMR/OpScan system shall automatically create and maintain an immutable and printable audit log report, recording the following information, at the minimum.		
26.1 For purposes of the Systems Evaluation, the Bidder shall actually demonstrate the immutability of its audit log.		
26.2 The OMR/OpScan system shall automatically record in its audit log the unique read-only machine identifier or any other machine identifier that is unique to each VCM.		
26.3 The OMR/OpScan system shall automatically record in its audit log the voting jurisdiction configuration.		
26.4 The OMR/OpScan system shall automatically record in its audit log the date-and-time stamps of each system event and user-interaction activity.		
26.5 The OMR/OpScan system shall automatically record in its audit log the type of VCM event.		

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26.6 The OMR/OpScan system shall automatically record in its audit log the specific VCM action or activity.		
26.7 The OMR/OpScan system shall automatically record in its audit log the specific identity of each user (such as BEI Chairman, Poll Clerk, Member, or VCM Technical Support).		
26.8 The OMR/OpScan system shall automatically record in its audit log the outcome (success or failure) of VCM events.		
27. The OMR/OpScan system shall automatically generate the precinct's election results immediately after closing of polls.		
28. The OMR/OpScan system shall be able to generate and print the Election Returns (ER), statistical report and audit log for a precinct.		
28.1 As a customization requirement, the formats of the ER, statistical report and audit log report shall comply with COMELEC's final specifications.		
28.2 The OMR/OpScan system shall ensure that the print out on all VCM reports shall remain legible for a minimum of six (6) years.		
28.2.1 For this purpose, the winning Bidder shall also provide the appropriate type and quality of paper to meet this requirement. (Delivery of an inferior quality of paper that would lead to the fading of the VCM print in less than 6 years shall penalize the winning Bidder accordingly, subject to proper		

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verification.)		
29. The OMR/OpScan system shall generate the VCM statistical report with the following information, among others:		
29.1 The OMR/OpScan system shall include in its VCM statistical report the demographic information for the precinct (Province, City/municipality, post/embassy, barangay name, precinct number or clustered precinct name with the individual precinct numbers).		
29.2 The OMR/OpScan system shall include in its VCM statistical report the number of registered voters for the precinct.		
29.3 The OMR/OpScan system shall include in its VCM statistical report the number of under-votes for every position.		
29.4 The OMR/OpScan system shall include in its VCM statistical report the number of over-votes for every position.		
29.5 The OMR/OpScan system shall include in its VCM statistical report the number of abstentions for every position.		
29.6 The OMR/OpScan system shall include in its VCM statistical report the number of valid votes for every position.		
29.7 The OMR/OpScan system shall include in its VCM statistical report the number of fake or spurious ballots, if possible.		
29.8 The OMR/OpScan system shall include in its VCM statistical report the number of rejected ballots scanned, if possible.		
30. The OMR/OpScan system shall be able to		

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create and save election results files, database or dump files, print files, and other files needed for canvassing and consolidation, which shall not be removed or erased from memory even if the machine is turned off.		
30.1 The OMR/OpScan system shall be able to encrypt the election results and other related files and other related files which are needed for canvassing/consolidation using either 128-bit or 256-bit standard encryption methodology (or even higher) with a security key or code (depending on the implementation by the vendor).		
30.2 The OMR/OpScan system shall be able to encrypt the database files or dump files for: (1) audit log; (2) election returns; (3) ballot images; and (4) statistical report using either 128-bit or 256-bit standard encryption methodology (or even higher) with a security key or code (depending on the implementation by the vendor).		
30.3 As a customization requirement, the decision on which standard methodology to use for encryption shall be available as a configurable option in the EMS.		
30.4 The OMR/OpScan system shall be able to create and save e-Day files of print file reports of (1) Election Returns (ER); (2) audit log; (3) statistical report; and (4) hash code generated for election results.		
31. The OMR/OpScan system shall be able to transmit, using the designated transmission service, encrypted and digitally signed election results files, from the VCM the EMS-configured destinations, such as the		

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City/Municipal/post or embassy BOC, the central server, and the transparency server.		
32. The OMR/OpScan system shall accommodate at least two (2) storage devices, and shall be capable of writing to the same all data/files, audit log, statistics and ballot images simultaneously.		
32.1 The OMR/OpScan system shall enable both copies of its data in the two (2) storage devices to be exact duplicates of each other.		
33. The OMR/OpScan system shall be able to generate a back-up copy of all e-Day data of the VCM to a removable data storage device within reasonable time which shall not be longer than one (1) hour.		
33.1 The OMR/OpScan system shall finalize and close the backup data in the removable storage device from further Write operations.		
34. The OMR/OpScan system shall be capable of zeroing out its result count storage which shall erase all previous counts in it.		
34.1 The OMR/OpScan system shall be able to generate an Initialization Report after this zeroing out to show that no votes have been cast or counted.		
34.2 The OMR/OpScan system's re-zero function shall permanently delete all files created during the counting, including the ballot images, except for the audit log report.		
34.3 The OMR/OpScansystem shall require the number of configuration-specified BEI		

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members, including the required user ID/name and unique password for the designated VCM before executing the re-zero function.		
34.4 The OMR/OpScan system's re-zero function shall only be used in as many times as the configuration-specified number of times for the same.		
35. The OMR/OpScan system shall not allow counting of ballots which is more than the specified number of registered voters for the VCM's configured precinct.		
36. The OMR/OpScan system shall allow under-voting and abstention in any position to be voted for.		
36.1 The OMR/OpScan system shall interpret an under-voting as a mark in the oval for a position that is less than the number of seats required for the position.		
36.1.1 For statistical purposes, the OMR/OpScan system shall record the number of under-votes as the number of the un-voted seats in a position.		
36.2 The OMR/OpScan system shall interpret an abstention as when there is no mark or no vote made in a position.		
36.2.1 For statistical purposes, the OMR/OpScan system shall record the number of abstentions per position.		
36.3 If there is only one required seat for an elective position and it was not voted, the OMR/OpScan system shall not statistically record it as an under-vote but as an abstention.		

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37. In case of over-voting in a position, the OMR/OpScan system shall not credit any vote for any candidate in the overvoted position with the ballot remaining valid.		
37.1 In case of over-voting in one or more positions, the OMR/OpScan system shall count the rest of the valid votes for the other positions.		
37.2 The OMR/OpScan system shall interpret an over-voting as when the number of marks for a position exceeds the set number of seats to be voted for.		
37.3 For statistical purposes, the OMR/OpScan system shall record the number of over-votes per position where there are over-votes (For example, if the voter voted more than one candidate for the position of president, the system shall count the occurrence of one (1) over vote for the President position. If more than twelve (12) candidates are voted for the position of Senator, the system will count the occurrence of one (1) over vote for the Senator position.)		
38. The winning Bidder shall provide a separate application which shall be capable of extracting generated hash code for the OMR/OpScan system and validating the integrity of the same.		
38.1 The Bidder shall actually demonstrate this hash code extraction and validation during the Systems Evaluation.		
38.2 The source codes of the hash code extractor and hash code validator for the		

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OMR/OpScan system shall be turned-over to COMELEC before the systems acceptance test, including proper source code and instructional documentation manuals, and training on understanding the same.		
39. The OMR/OpScan system shall comply with COMELEC requirements for hardening its operating system, which shall be specified in the Systems Customization Phase.		
39.1 If the system uses a customer-off-the-shelf (COTS) operating system (OS), the winning Bidder shall submit an OS hardening procedure documentation, which shall be subject to the agreement, final approval and modification by COMELEC.		
40. The bidder shall provide for a separate application that shall allow decryption and printing of each ballot image and other related files, and which shall have the following functionalities:		
40.1 The decryption application shall decrypt the files from the data storage device used at the precinct level containing the ballot images, local returns, national returns, audit log, statistics or other files.		
40.1.1 As a customization requirement, the decryption application shall generate the filenames of the decrypted files to include the province code, city/municipality code and clustered precinct codes.		
40.2 The decryption application shall create the		

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list of filenames of the ballot images sorted by filename.		
40.3 The decryption application shall split each ballot image file into three (3) pages, i.e. one page for the front of the ballot image, another page for the back of the ballot image, and another page for the summary of votes interpretation, such as but not limited to candidates voted, number of over-vote, abstention and under-vote.		
40.3.1 The decryption application shall indicate the filename to be printed at the top of each page.		
40.3.2 The decryption application shall generate the filename of the ballot to contain its unique ballot ID.		
40.4 The decryption application shall convert the ballot images into Portable Document Format (PDF) files.		
40.5 The decryption application shall be able to merge the individual PDF files into one PDF file.		
40.6 The decryption application shall be able to generate a hash code for the merged PDF file.		
40.7 The decryption application shall have a functionality for saving the concerned files, and the corresponding hash codes, to an external data storage device.		
40.8 The decryption application shall have a display and printing functionality for the hash codes, list of filenames, merged PDF file and other decrypted files, as applicable.		

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41. The OMR/OpScansystem capable of creating a back-up of all data/files, which can be used for manual upload to the COMELEC CCS, in case of failure of transmission.		
42. The OMR/OpScan system shall be able to print its hash code in all VCM reports to be generated by the machine.		
43. The OMR/OpScan system shall have an Open Voting and a Close Voting mode.		
43.1 The Open Voting mode of the OMR/OpScan system shall signal the start of allowing the scanning of ballots into the VCM.		
43.2 The OMR/OpScan system shall only allow the insertion of ballots while the system is in Open Voting mode.		
43.3 The Close Voting mode of the OMR/OpScan system shall signal the stop of allowing the scanning of ballots into the VCM and the start of report generation and electronic transmission activities.		
44. The OMR/OpScan system shall have a built-in functionality for performing diagnostic tests and prompting system alerts to indicate the faulty condition of the ballot sensor of the VCM whenever a ballot is cast.		
44.1 The OMR/OpScan system shall be able to generate a VCM diagnostics report, which shall indicate the diagnosed status of the working condition of all applicable VCM components.		
45. The OMR/OpScan system shall have a functionality to segregate accepted and rejected ballots in separate bins in its ballot		

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box.		
45.1 For this purpose, the Bidder shall submit a separate design for the ballot box with a ballot segregator.		
45.2 As a customization requirement, the decision to use the VCM ballot segregation scheme or not shall be a configurable option in the EMS.		
45.3 As a customization requirement, and if the VCM ballot segregation scheme will be used, the OMR/OpScan system shall ensure that ballots which have been verified by the VCM as invalid or lacking the appropriate security features but have been explicitly cast by the voter shall not be counted and shall be deposited in the invalid ballots bin of the ballot box.		
46. The Bidder shall actually demonstrate its system's compliance to hereinstated minimum requirements during the Systems Evaluation in the Post-Qualification Stage.		
46.1 For purposes of the Systems Evaluation, the VCM shall be configured using an EMS-generated file based on imported COMELEC data.		
46.2 For purposes of the Systems Evaluation, the VCM shall transmit its results to three (3) EMS-designated destinations in separate recipient machines (simulating the Central Server, the Transparency Server, and the City/Municipal Board of Canvassers (C/MBOC)).		
47. The Bidder shall submit with its bid proposal		

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the total number of lines of code of all proposed systems which would be the subject of the source code review, together with a breakdown of the corresponding lines of code for all related components.		
48. The OMR/OpScan system shall have the following **minimum customizable functionalities** (unless indicated otherwise as a minimum requirement)to be tested and verified during the scheduled systems customization or before the systems acceptance.		
48.1 The OMR/OpScan system shall be able to display the hash code of the system, the date and name of elections, system's current date and time and the election configuration details on the VCM's display panel upon system start up.		
48.1.1 The OMR/OpScan system shall be able to display the above information on the VCM's display long enough for visual verification purposes. (For this purpose, this duration shall be configurable in the system.)		
48.2 The re-zero function of the OMR/OpScansystem can no longer be used once the VCM is in election mode (or in Open Voting mode).		
48.3 The messages, prompts, and reports and statistics format of the OMR/OpScan system shall be in accordance with the COMELEC requirements and shall be subject to modification and finalization		

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during the Systems Customization Phase.		
48.4 Entries in the log files shall be written in such a way that they can be easily understood and shall not make use of coded language, without readily providing the equivalent meaning, and shall be subject to modification and finalization during the Systems Customization Phase.		
48.5 The OMR/OpScan system shall allow the indication of a user-specified date range for the selective display and printing of audit log entries.		
48.6 The OMR/OpScan system shall generate an electronic transmission report that shall automatically be generated after the success or failure, in part or all, of transmission attempts by the VCM, and which shall record such transmission status on the report.		
48.7 The winning Bidder shall be further required to customize the VCM in order to be compatible with COMELEC's existing CCS application at no additional cost to the Commission.		
48.8 The final design, including on-screen messages, prompts and instructions, together with other applicable system functionalities of the OMR/OpScan system for e-Day use shall still be subject to final customization requirements by the COMELEC.		
48.8.1 For this purpose, the Bidder shall submit, with their financial bid, a written certification or guarantee that		

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all system requirements for customization as stated in the TOR and RA 9369 shall be fully complied with, subject to applicable penalties for non-compliance.		
49. The proposed OMR/OpScan system shall have demonstrated capability (which shall be verified and validated in a test environment) and shall have been successfully used in a prior electoral exercise here or abroad, with a written certification to that fact from the election authority or election management body of the client.		
50. The winning Bidder shall also provide all requirements (hardware, software and services) needed for the enrollment of the digital certificate/signature of all members of the BEI.		
50.1 All related requirements by the OMR/OpScansystem which are needed to make it fully operational during the entire duration of the project (including requirements for all tests, FTS, training, public demo, certification, e-Day) shall be included in the proposal/offer, including the software and hardware, back-up power supply, external data storage devices, ballot marking pens and other supplies, printers and other equipment and peripherals, services, and consumables.		
50.2 All consumables, supplies and materials,		

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such as removable storage devices, paper, ink, marking pens and the like, which are needed by the system to be operational, and which have used in all tests, and from before to after e-Day, including all documentations shall be proposed as purchased and shall all be turned over to COMELEC at no additional cost.		
50.3 The winning Bidder shall not demand for additional payment from COMELEC to procure additional OMR/OpScan requirements during Project Implementation for items that it may have overlooked in its Bid Proposal.		
50.4 The Bidder shall make use of the Financial Proposal Template to indicate a detailed listing of the items, with breakdown of costs, in its proposal.		
50.5 The winning Bidder shall bear all additional costs for OMR/OpScan system-related goods and services that it failed to include in its proposal, but shall be deemed required to be provided as part of the "all requirements" inclusivity specification.		
50.6 The winning bidder shall provide all hardware, software and service requirements that are necessary to run the AES from preparation of configuration to post-election, including VCM modems, back-up power supplies or batteries, external data storage devices, printers, and all other equipment and peripherals, services, consumables, and all other related supplies and materials.		

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51. After Project implementation, in case the COMELEC decides to exercise the option to purchase the OMR/OpScan system, the COMELEC shall be free to use or modify the system as it sees fit without incurring any liability from the winning Bidder.		
C. Other Requirements		
I. VCM/EMS		
1. The winning bidder shall turn over to COMELEC the following:		
1.1 the settings, configuration, scripts, codes, or passwords used, at least one (1) week before E-Day;		
1.2 all disk images of all servers, used in the configuration and in the installation before E-Day; and		
1.3 all back-up files, (EMS files, VCM files, ballot templates) one month after E-Day.		
1.4 Application and procedures on restoration of back-up files and disk images, including information on minimum hardware requirements to restore the files		
2. The bidder shall submit the following technical documentations for EMS, VCM, ballot printing:		
2.1 User manuals;		
2.2 System Requirements Specifications, describing all the inputs, outputs, processing rules, volumes, performance, thresholds etc. of the system being described;		

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2.3 System Design Specifications, describing the technical methods to build the system including design specifications, program specifications, data dictionary, entity relationships etc.;		
2.4 Training Manuals;		
2.5 Installation Procedures from bare metal (OS, database, application, third party systems, pre-requisite requirements, configuration)		
2.6 Installation Procedures from bare metal (OS, database, application, third party systems, pre-requisite requirements, configuration)		
2.7 Setting up and securing the network infrastructure.		
2.8 Test Procedures;		
2.9 Other Support and Maintenance Manuals; and		
2.10 Other Standard Documentation		
The winning bidder shall turn-over the final documents above, after the final customization of the system.		
3. The winning bidder shall provide warranty for the entire duration of the project for all Components, all equipment and software, including provision of all software/firmware upgrades or replacement of any defective components, entire units, or systems.		
3.1 The bidder shall include in the submission of bid documents, the cost of each component part of the VCM.		
3.2 The winning bidder shall submit a		

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certification that all parts and components of the hardware shall be available for three (3) national and local elections after the purchase of the hardware.		
4. The winning bidder shall provide for an inventory system that shall track the movement of the machines.		
5. The winning bidder shall provide all requirements for the certification by International Certification Entity (ICE):		
5.1 hardware, software, peripherals, documentation, consumables and other requirements of all systems without any additional cost to the COMELEC;		
5.2 all technical support necessary, without any additional cost to the COMELEC; the services of the ICE shall be borne by the COMELEC.		
5.3 before and after customization, turn-over all systems based on the COMELEC timelines, to the ICE, who shall review the system and conduct functional testing, such as but not limited to:		
5.3.1 All scripts used;		
5.3.2 System Development Kit (SDK) of the machine for VCM;		
5.3.3 All applications;		
5.3.4 All third party systems;		
5.3.5 Batch files;		
5.3.6 Utilities;		
5.3.7 Circuits Schematics; and		
5.3.8 All files that make the system		

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operational.		
6. Source Code shall be submitted by the bidders during first stage bidding.		
6.1 For purposes of source code review and ICE by the interested parties, base source code shall be made available not later than 60 days from the issuance of the Notice of Award.		
7. The winning bidder shall authorize COMELEC to make available the ICE certified final source code of the EMS, VCM and all of its components, to any interested party or groups		
8. The winning bidder shall replace all expendable parts of the VCM used in the ballot verification, before its deployment to the assigned regions. For this purpose, the bidder shall indicate in its bid the expendable parts of the VCM.		
9. The winning bidder shall provide for remote and on-site technical support in the conduct of source code review by the local interested parties, without additional cost to the COMELEC.		
10. The winning bidder shall present/discuss the source codes of the EMS and VCM and all of its components to the technical personnel of the COMELEC		
11. The winning bidder shall provide all requirements for the conduct of all training and public demonstration		
12. The winning bidder shall provide all requirements for the conduct of the different tests (Hardware Acceptance Test (HAT), Lab		

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Test, Field Test, Mock Elections, Pre-Election Logic and Accuracy Test (PreLAT), TEC Certification Test, Live Transmission Test, Final Testing and Sealing (FTS)) and public demonstration:		
12.1 **HAT**, which stands for **hardware acceptance test**, and which shall cover all machines offered in the bidder's bid, including all standby units that shall be provided by the winning bidder to replace all defective units.		
12.1.1 This shall include all hardware to be offered the Project, including pre-election configuration, voting and counting.		
12.1.2 The scanning component of the VCM machine shall be subjected to a mark accuracy test by scanning a test ballot with marks for all possible ovals or marking space positions, which must all be accurately recognized as valid marks by the machine.		
12.1.3 All hardware components, such as input and output devices, including all ports shall be completely subjected to HAT.		
12.1.4 All hardware peripherals, such as cables and cords, and cleaning kits, if any, shall also be included in the test.		
12.1.5 A5% sample of every delivery lot/batch shall be subjected to stress test, or the scanning of 1000 ballots per machine.		
12.1.6 All hardware and peripherals shall		

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have a unique bar-coded serial number for inventory purposes. If any hardware component shall not have any serial number from its manufacturer, the provider shall create its own and firmly attach it to the said component.		
12.1.7 All hardware that did not pass the HAT, for whatever reason, shall be replaced with a new unit within twenty-four (24) hours.		
12.1.8 The winning bidder shall provide HAT testers at no additional cost to COMELEC.		
12.2 **Lab test**, or **laboratory test**, which shall be an environment-controlled test of the Election-Day version of all systems to be used on E-Day; and which shall be conducted twice using the first customized version, and the final trusted built version		
The final trusted built version of the system is the software compiled by the ICE.		
12.2.1 An **end-to-end test** shall be conducted (from EMS to CCS all levels including transmissions, central server, transparency server, web server, ballot printing, verification and ballot image and other files decryption).		
12.2.1.1 The test shall make use of machines which have already passed the HAT.		
12.2.1.2 The winning bidder shall submit a certification that it has already conducted its own internal Quality		

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Control (QC) and Quality Assurance (QA) tests on its systems before turnover to COMELEC for Lab Test, and that its systems have already passed the same. In this case, two (2) certifications shall be submitted.		
Submission of the Certifications shall mean that all minor programming errors have already been identified and consequently corrected by the winning bidder prior to turnover to COMELEC for lab testing. Failure of the winning bidder to conduct these QC and QA procedures shall be subject to imposition of the corresponding penalties.		
12.2.1.3 The test shall include a compliance verification of technical specifications, as stated in this TOR and in the Systems Customization requirements, including		
12.2.1.3.1 **Accuracy test**, which shall be a test for the correctness of reading of votes as ideally marked on the test ballots in accordance with the accuracy rating as indicated in this TOR;		
12.2.1.3.2 **Reading consistency test**, which shall be a test for the consistency of interpretation of ballot marks in the same machine and in different machines;		

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12.2.1.3.3	**Ballot security test**, which shall be a test of the effectiveness of the ballot security features, both visual and logical, as provided by the winning bidder;		
12.2.1.3.4	**Ballot images test**, which shall be a test of how the ballot images are correctly interpreted into votes, as ideally marked on the test ballots, and can be used to identify and verify the authenticity of the ballot count;		
12.2.1.3.5	**Access levels test**, which shall be a test of the availability and differences of levels of access into the system;		
12.2.1.3.6	**Access security test**, which shall be a test for the effectiveness of the built-in security features of the system against attempts on unauthorized access into the system;		
12.2.1.3.7	**Data encryption-decryption test**, which shall be a test for the availability of data encryption and decryption measures and its effectiveness in securing the system's data structure;		
12.2.1.3.8	**Digital signature test**, which		

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	shall be a test for the availability of digital signatures as a security and non-repudiation measure;		
12.2.1.3.9	**Data backup test**, which shall be a test on the availability of a data backup functionality, which includes a facility that is able to retrieve and make use of the backup data as input to the system, when the need arises;		
12.2.1.3.10	**Backup power test**, which shall be a test of the availability of backup power supply to power up the machines, in case of power interruption;		
12.2.1.3.11	**User interface design test**, which shall be a test of the ease of usage of the system to a regular user;		
12.2.1.3.12	**Error messages test**, which shall be a test of the availability of easily understandable error messages, which would indicate to a user what error has occurred and the next step of action be to taken;		
12.2.1.3.13	**Error recovery features test**, which shall be a test of the capability of the system to recover from an error without data loss;		

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12.2.1.3.14	**Reports generation test**, which shall be a test of the required election reports, such as the Initialization/Zero Out Report, Election Returns, Precinct Audit Log, Precinct Statistical Report, Transmission Log and other Reports;		
12.2.1.3.15	**Report formats test**, which shall be a test for adherence to COMELEC-provided report formats;		
12.2.1.3.16	**Environment tests**, which shall be a test for the machine's operational capability under the country's average highest recorded temperature and humidity conditions, and which shall be conducted with the assistance of DOST;		
12.2.1.3.17	**Print legibility test**, which shall be a test for the readability or legibility of the reports generated by the proposed system after six (6) years, and which shall be conducted with the assistance of DOST; and		
12.2.1.3.18	**Marking Sensitivity (Optical Scanner Test)**, which is a test on how the machine will react when the ballot with wet ink is scanned.		

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12.2.1.3.19 **Backup and Restore Test**, which shall be the test to back-up results or reports and to restore to its original format the backed-up results		
12.2.1.3.20 **Other tests** for the compliance to all other technical specifications as stated in this TOR.		
12.3 The test shall cover an end-to-end **systems integration test** for the following functionalities:		
12.3.1 **Election data management**, which shall be a test of the system's capability to manage or prepare election data to be used for the elections;		
12.3.2 **Election data configuration**, which shall be a test of the system's capability to prepare all the needed configuration data for all voting and counting machines;		
12.3.3 **Election data configuration verification**, which shall be a test of the system's built-in capability to verify the correctness of the generated configuration of its election data;		
12.3.4 **Ballot configuration**, which shall be a test of the system's capability to prepare all the needed configuration data for ballot generation;		
12.3.5 **Ballot configuration verification**, which shall be a test of the system's built-in capability to verify the correctness of the generated ballot		

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configuration;		
12.3.6 **Ballot counting machine configuration**, which shall be a test of the system's capability to prepare all the needed configuration data for ballot counting machines;		
12.3.7 **Ballot counting machine configuration verification**, which shall be a test of the system's capability to verify the correctness of the generated ballot counting machine configuration;		
12.3.8 **User-friendly voting**, which shall be a test of the clarity of the messages as shown on the machine's display and on the design of the ballot;		
12.3.9 **Accurate counting**, which shall be a test for accuracy of the votes counted per machine from the ballots which were fed into each machine;		
12.3.10 Easy **systems reconfiguration** for a different election and/or different election type, which shall be a test of how easy the reconfiguration of the system for a new or different election or electoral event shall be implemented without the need for technical support service from the winning bidder; and		
12.3.11 **Decryption of election results and ballot images**, which shall be a test of decrypting the election results of VCM and verification of decrypted election results and ballot images.		
12.3.12 **Integration of VCM results with CCS**, which shall be a test of acceptability or		

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compatibility of the VCM results by the COMELECCCS, CS, TS, WS, and BS;		
12.3.13 **Electronic Transmission of results**, which shall be a test of the ability of VCM to transmit results electronically		
12.4 **All functionalities** of all systems included in this TOR and functionalities to be proposed by the winning bidder, which shall be integral to the entire AES.		
12.5 For information on how the system reacts to the different **situations and scenarios**, without prejudice to passing the Lab Test, the following tests shall also be conducted:		
12.5.1 **Voting marks sensitivity**, which shall be a test of how the system shall identify different marks, including:		
12.5.1.1 Partially shaded ovals or marking spaces;		
12.5.1.2 Partially shaded ovals or marking spaces;		
12.5.1.3 Odd marks, such as check or x marks, in ovals or marking spaces.		
12.5.2 **Marking device sensitivity**, which shall be a test of how marks made by different writing devices shall be recognized as valid marks by the system, by using:		
12.5.2.1 Ballpoint pens (different points and colors);		
12.5.2.2 Gel pens (different colors); and		
12.5.2.3 Other commonly used writing and marking devices.		

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12.5.2.4 Spectral sensitivity to non-visible ink with the assistance of DOST.		
12.5.3 **Ballot paper condition sensitivity**, which shall be a test of how different physical conditions of the ballot would have an effect on the machine's capability to recognize a valid mark, such as:		
12.5.3.1 Evenly folded horizontally;		
12.5.3.2 Evenly folded vertically;		
12.5.3.3 Folded horizontally across a validly marked oval or marking space position;		
12.5.3.4 Folded vertically across a validly marked oval or marking space position;		
12.5.3.5 Crumpled;		
12.5.3.6 Wet, then dried up;		
12.5.3.7 Heat and Humidity sensitivity;		
12.5.3.8 Torn off corners of the ballot, without tearing off portions of the readable area (or area with the oval or marking space positions);		
12.5.3.9 Taped torn ballot;		
12.5.3.10 Taped torn ballot on the portion with a valid mark on an oval or marking space position; and		
12.5.3.11 Blank valid ballot.		
12.5.4 **Error handling**, which shall be a test of how the system shall react to different unexpected situations which are not part of the regular procedure,		

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including the following situations:		
12.5.4.1 Ballot misfeeding;		
12.5.4.2 Scanning ballots more than the registered voters;		
12.5.4.3 Scanning ballots intended for another precinct;		
12.5.4.4 Scanning previously scanned ballot;		
12.5.4.5 Scanning unauthorized/ fake/photocopy/ spurious/ rejected ballot;		
12.5.4.6 Under voting;		
12.5.4.7 Over voting;		
12.5.4.8 Abstention;		
12.5.4.9 Systems startup failure;		
12.5.4.10 Power failure;		
12.5.4.11 Transmission failure; and		
12.5.4.12 Data backing up failure.		
12.5.5 **Stress test** (voting, counting, canvassing, transmission), which shall be a test of the system's capability to run normally considering the maximum number of ballots per VCM, maximum number of simultaneous transmissions to a target destination, without deterioration in accuracy and efficiency.		
12.6 The winning bidder shall provide Technical Support for the Lab Test at no additional cost to COMELEC.		
12.7 **Field test**, which shall follow the successful conduct of the Lab Tests, shall		

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be an on-site integration test of E-Day procedures, from voting up to proclamation of winning candidates:		
12.7.1 The test shall make use of machines which have already passed the HAT.		
12.7.2 All different modes or types of transmission devices and telecommunication service providers shall be used in this Test.		
12.7.3 The contingency plans for failure of devices and systems shall be simulated in this Test.		
12.7.4 Areas with stable, unstable and without power and telecommunication service shall be the criteria for selection of the test areas from NCR, Luzon, Visayas, Mindanao including central server, transparency server; backup server, web server, NBOCs		
12.7.5 The following shall be included in the test:		
12.7.5.1 VCM;		
12.7.5.2 Transmission;		
12.7.5.3 all levels of CCS; and		
12.7.5.4 central server, transparency server, backup server, web server		
12.8 **Mock elections**, which shall be an actual demonstration to the public of the system's capabilities and readiness. It shall be a simulation of E-Day activities, from voting up to proclamation of winning candidates, after the successful conduct of the Lab and		

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Field Tests;		
12.8.1 The test shall make use of machines which have already passed the HAT and trusted build systems.		
12.8.2 Registered voters, BEI members, technicians, CCS technical staff and BOC members shall participate in the mock elections.		
12.8.3 With as much media coverage as possible, the Mock Elections shall be conducted in four (4) COMELEC-selected areas, with two (2) mock precincts and fifty (50) mock voters for each precinct.		
12.8.3.1 In case the COMELEC decided to increase coverage of areas for mock elections, the COMELEC shall shoulder the additional expenses that may incur.		
12.9 **TEC Certification**, which shall be issued by the Technical Evaluation Committee (TEC) through an International Certification Entity based on the following:		
12.9.1 Successful conduct of Source Code Review, including the forensics of the hardware of VCM, the outcome of which shall form an integral part of its Certification Test.		
All findings during the source code review must be closed/solved on:		
12.9.1.1 Before the issuance of TEC Certification, all discrepancy findings shall be closed/solved.		

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12.9.1.1.1 A discrepancy that threatens the integrity of the election or could cause the results of testing to be not repeatable.		
12.9.1.1.2 A discrepancy that adversely affects the understandability, maintainability, or reliability of the program, in a significant manner, but does not threaten the integrity of the election.		
12.9.2 **Certification testing** of the system, to ascertain its compliance with provisions of RA 9369, RA 8436, and COMELEC's Request for Proposal for the Automation of the May 9, 2016 Elections; and		
12.9.3 Successful conduct on of audit on the accuracy, functionality and security controls, including systems intrusion test to ensure that all security loopholes have been addressed.		
12.10 **PreLAT**, which stands for Pre-election Logic and Accuracy Test, which shall be a test of E-Day configuration of each machine to be deployed using actual ballot configuration:		
12.10.1 The test shall make use of actual E-Day ballots with vote marks. The winning bidder shall provide three (3) accomplished ballots per clustered precinct for this purpose.		
12.10.2 The test shall include transmission test to the canvassing system of the		

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corresponding Board of Canvassers and to the central server, transparency server, backup server, and web server that shall be operational on E-Day.		
12.11 **Final Testing and Sealing (FTS)**, which shall be the final readiness test of all systems and machines to be used on E-Day, using actual machine configuration;		
12.11.1 The test shall make use of the final trusted built version of the systems that shall be used on E-Day.		
12.11.2 The test shall make use of machines which have already passed the HAT and PRELAT.		
12.11.3 This shall happen on any day three (3) to seven (7) days before E-Day in all voting sites.		
12.11.4 In case of problems during FTS, such as but not limited to malfunction of the machines, error in the configuration, or error in the ballot, the provider shall be responsible of correcting them without additional cost to COMELEC.		
13. The winning bidder shall provide all materials, supplies, equipment and support services that maybe used in the conduct of all the above-mentioned tests at no additional cost to the COMELEC.		
13.1 Materials shall include all documentations, consumables and test checklists that shall be used with the machines for the Tests.		

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13.2 Supplies shall include the ballot markers for voting, the printers, toners and paper needed for the printing of all reports, and the data storage devices for data backup purposes.		
13.3 The winning bidder shall ensure that sufficient and efficient technical support personnel are present during the conduct of the Tests.		
13.4 Sufficient standby units shall be provided on site by the winning bidder in case of defective units during the conduct of the Tests.		
13.5 To facilitate the monitoring of the conduct of all the above-mentioned tests, the winning bidder shall also provide a computerized **Machine Inventory System**, the outputs of which shall also be used by the COMELEC, which shall have the following minimum functionalities:		
13.5.1 Search capability using machine's serial number;		
13.5.2 Database export facility to comma separated values (CSV) format;		
13.5.3 Report generation on:		
13.5.3.1 List of machines which passed the HAT, PreLAT and all other hardware-related tests;		
13.5.3.2 List of machines which failed the HAT, PreLAT and all other hardware-related tests;		
13.5.3.3 Statistics on the number of machines which passed/failed the HAT, PreLAT and all other		

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hardware-related tests		
13.5.3.4 Statistics on the number of machines which passed/failed the HAT, PreLAT and all other hardware-related tests		
13.5.4 Report export facility to PDF format;		
13.5.5 Other such functionalities which are common of inventory systems, and which shall be subject to final approval by the COMELEC.		
14. The COMELEC shall have control on all tests to be conducted.		
15. The winning bidder shall provide for technical support and manpower complement in the conduct of HAT, PRELAT, Reverse Logistics (testers, logistics, packers, etc.)		
16. All ballots to be used in all tests, training, voter education and E-Day ballots shall undergo ballot verification, through VCM scanning.		
16.1 For this purpose, the winning bidder shall provide the following for use in the verification of ballots;		
16.1.1 VCM machines;		
16.1.2 All systems needed;		
16.1.3 Contingency VCM;		
16.1.4 Peripherals such as, but not limited to, storage devices, machine keys, printers, and barcode readers for the VCM machines;		
16.1.5 Any and all consumables for use in the ballot verification such as, but not limited to, paper, and ink/toner for the		

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verification of the ballot; and		
16.1.6 System for the inventory of the verified ballots.		
16.2 The winning bidder shall provide for the delivery and pull-out of VCM machines from the warehouse to the National Printing Office (NPO) or *BangkoSentral ng Pilipinas* (BSP) and vice versa.		
16.3 All system security control shall be handled by COMELEC *e.g.* usernames, passwords, keys of servers, systems and configuration used.		
16.4 After the verification for E-Day ballot, (1) All VCMs used shall be checked, cleaned or maintained; and (2) all expendables part of the VCM machine such as scanner or any other parts shall be replaced with new part.		
16.4.1 For this purpose the bidder shall submit the list of expendables part of the VCM.		
17. The winning bidder shall deploy all VCMs, ballot boxes, and other AES equipment and peripherals, including all other AES-related consumables, supplies and materials		
17.1 Deployment shall be for field test, mock elections, and trainings (for field personnel, BEIs, BOCs).		
17.2 Contingency equipment, consumables, supplies and materials shall be included in the items for expected deployment to the designated sites.		
18. After the receipt of the machines from the Deployment Service Provider, the winning		

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bidder shall conduct post-election activities, which includes Inspection, Inventory and Testing, based on the timelines, under the supervision of the COMELEC. The winning bidder shall perform the following:		
18.1 Turn-over to COMELEC all storage devices and supplies and materials, retrieved during the conduct of reverse logistics;		
18.2 Provide the COMELEC with the system for backing-up, viewing and printing of all files stored in the removable devices for use in case of election protests, at no additional cost to COMELEC.		
18.3 Provide technical support in this activity.		
19. The winning bidder shall submit a post-election report to the COMELEC on all activities undertaken pertaining to the project one month after E-Day.		
20. The winning bidder shall submit a plan on the conduct of training, tests, setting-up, configuration, FTS and E-Day activities, back-up, closing and other related activities.		
21. The winning bidder shall provide:		
21.1 project management support to manage the submitted plan and be specifically responsible for the following, among other tasks:		
21.1.1 overseeing and implementing the plan;		
21.1.2 coordinating with the COMELEC on all related aspects of the Project;		
21.1.3 monitoring the progress and status of the activities;		

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21.1.4 resolution of related problems;		
21.2 The project management support of the winning bidder shall coordinate and report regularly with COMELEC		
22. All oher requirements as listed in the TOR shall be complied with by the winning bidder.		
II. TRAINING - Training requirement shall include the following:		
1. A COMELEC approved training program for executives;		
2. An extensive training or transfer of technology. The training shall be in two (2) stages (1 – before the customization of systems, for testing and preparation of customization requirements and 2 – using the final customized system). The training shall address, but shall not be limited to, the following topics:		
2.1 Installation and configuration of systems (EMS, VCM, ballot printing) from bare metal;		
2.2 Generation of election configuration for VCM and ballot faces;		
2.3 Installation of election configuration in VCM;		
2.4 Operation and administration of all provided applications and third party systems;		
2.5 Format or template of VCM file output input to CCS and central server and CCS output input to next level CCS and central server		

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2.6 Repair, troubleshooting, tuning up and maintenance of hardware and software;		
2.7 Designing, printing and reformatting ballot faces and all election reports;		
2.8 Safeguards to prevent and detect tampering or theft;		
2.9 Critical system errors		
2.10 Security and intrusion prevention and detection systems; and		
2.11 Contingency plan.		
3. A training for trainers and certifiers, which shall include:		
3.1 Setting up and testing the machines, and components thereof;		
3.2 Proper operation and security of the machines from start to finish;		
3.3 Troubleshooting methods to quickly identify and resolve problems.		
4. Training programs for the BEIs and Random Manual Audit Team subject to COMELEC approval		
5. Training for the Technical Support		
6. Re-training of COMELEC trainers in case of substantial changes in the system;		
7. Training materials should be submitted to and approved by COMELEC prior to printing; and		
8. All training ballots, consumables, manuals and training materials should be provided by the winning bidder;		
9. The winning bidder shall provide for replacement or additional manuals when required by the COMELEC.		

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10. All oher requirements as listed in the TOR shall be complied with by the winning bidder.		
Risk Management and Contingency Planning		
The winning bidder shall provide proposals related solely for this project on the following:		
1. Risk management program that shall address security and other related risks (environmental, physical, political, people-related risks, etc.) that the project might encounter in the course of project implementation and more so anticipate the possible risks after the Project. Such program shall include trainings and workshops that shall incorporate skills enhancement modules for all personnel involved in the Project.		
2. Back-up plan in case of systems failure in any of the Project components. For this purpose, a Contingency Plan Manual which shall cover all possible contingencies in all Project phases, (Technical, Operational, Training, Administrative and Support/Allied services aspects of the Project) shall be submitted to COMELEC. The said manual shall bring together all operational risks and problem areas, with their corresponding solutions, which shall be made into a repository of scenarios that shall apply, if necessary, to similar events in the conduct of future automated electoral exercises. It shall further include the corresponding risk controls and assessments, results from individual and collective feedbacks, key risk indicators, events such as losses and near-misses, current issues and remediation plans, among others.		

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2.1. This shall also include issue and conflict resolution, in terms of providing alternative courses of action, in case of inevitable conflicts among the parties involved in the Project and the mitigation of risk in case there are any.		
2.2. The modules of the risk training and the Contingency Plan Manual shall be submitted to the COMELEC as indicated in the implementation calendar, for its evaluation, review and approval. In the evaluation and review of said documents, the Provider shall be required to provide a number of its personnel complement to the COMELEC to address all possible issues and concerns, determine the soundness and workability of the proposed contingency measures, and make sound proposals to change or improve said contingencies.		
3. Risk monitoring tools (manual and automated) to track the identified and unidentified risks, including risk responses, responsibility assignment matrix (RACI).		
4. All oher requirements as listed in the TOR shall be complied with by the winning bidder.		
Change Management		
Bidders are required to submit its plan on the proposed change management services on this specific project, with particular emphasis on the following areas:		
1. Handling of change request or request of changes in the system after it has been		

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accepted by COMELEC;		
2. Transfer of Technology for the COMELEC executives, technical personnel, Board of Election Inspectors, Technical Support, Trainers, Machines Operators.		
2.1. This is Empowerment of the COMELEC personnel in terms of knowledge, attitudes and skills to eventually takeover the functions and thereby enabling them to use the system in managing the electoral process more effectively;		
3. Voter Education and Information		
3.1. The winning bidder shall provide adequate assistance and logistical support in the conduct of the information assistance and education campaign to be undertaken by the COMELEC. This assistance and support shall include, but shall not be limited to:		
3.1.1. Providing advice and recommendation to improve the information dissemination and education campaign of the COMELEC;		
3.1.2. Providing reference materials;		
3.1.3. Providing contact information and arranging consultations with other system users;		
3.1.4. Providing resource speakers;		
3.1.5. Providing comprehensive public relations support for the project.		
3.2. The winning bidder shall design, develop, and produce information materials for the		

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following media:		
3.2.1. Print – including but not limited to posters, fliers, streamers, pamphlets, and print advertisements; and		
3.2.2. Broadcast – including but not limited to audio clips and video clips, in the best suitable formats appropriate for radio airing, and for uploading to the internet.		
3.3. The winning bidder shall also be responsible for designing, developing, and producing the following;		
3.3.1. A comprehensive manual on the use and operation of the system;		
3.3.2. A comprehensive list of frequently asked questions, with suggested answers, on the use and operation of the system; and		
3.3.3. Such other information materials as may, from time to time, be reasonably and seasonably required by the COMELEC.		
3.4. The winning bidder shall provide 220 VCM units for road shows that shall be taken from the contingency units.		
3.5. The winning bidder shall co-develop and co-maintain, in close coordination with a COMELEC-designated webmaster, a voter education and information website for this project.		
The proposal shall include the delivery of all requirements, including hardware, software, services, technical training, and		

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communications link, which shall be formally turned over to the COMELEC upon the completion of the project.		
4. All oher requirements as listed in the TOR shall be complied with by the winning bidder.		
Quality Control and Quality Assurance		
The COMELEC shall conduct a project audit at periodic intervals of the progress of the winning bidder's schedule of work and deliverables to ensure that the Project delivers a range of Products, which may be goods and services, of an appropriate quality within time scales and budget.		
1. For purposes of evaluation of the bids, the Bidders must describe their standards for audits including scope, required conduct, demands upon project personnel, demands upon the COMELEC personnel and outputs.		
1.1. If the winning bidder is found to have given erroneous or conflicting data or information in the course of the Project's implementation, inadvertently or otherwise, it shall bear the corresponding costs for the rectification/correction thereof, and the imposition of applicable penalties and its effect to the provisions of the Contract pertinent thereto, as the COMELEC may deem proper under the circumstances.		
2. The winning bidder shall provide pertinent guidelines and procedures to aid the COMELEC in the crafting and development of Quality Assurance criteria for the evaluation of the various phases and/or activities of the		

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Project.		
3. The following tasks shall also be required:		
3.1. Develop and implement procedures for the measurement and monitoring of the Service Level Agreements (SLAs) for the other components of the Project;		
3.2. Assist in the regular monitoring of SLA compliance for all components;		
3.3. Assist in the conduct of a 3rd party Stress and Security Testing of all systems;		
3.4. Assist in the conduct of a 3rd party code review of the system;		
3.5. Assist in recommending acceptance and payment for the services or outputs, and/or the position of penalties where applicable;		
4. All oher requirements as listed in the TOR shall be complied with by the winning bidder.		
COMPONENT 2: Ballot Printing Services:		
The winning bidder shall comply with the following minimum ballot requirements, including the provision of ballot printing system, ballot paper, a ballot verification system and equipment, and all other related goods and services for the purpose.		
1. The winning bidder shall provide an estimated 15 million ballots.		
1.1 The budget for ballots is at the rate of Php20.00 per ballot. This unit cost of Php 20.00 includes cost of ballot paper with security features, ink, provider's services, printer (if a separate printer is required by		

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the provider), other requirements specified in this TOR and printing services by the National Printing Office (NPO) and/or *BangkoSentral ng Pilipinas* (BSP), which services rate is estimated at Php5.00 per ballot. The COMELEC will negotiate with the NPO as to the total contract amount for printing services. Thus, for the purpose of providing a uniform basis in the computation of the financial proposals, the budget ceiling for ballots (less NPO printing services) shall be Php15.00 per ballot.		
2. The winning bidder shall provide the following minimum general requirements for the provision of ballot-related goods and services:		
2.1 Ballot printing system, which shall include all requirements, together with all software, hardware, and services needed, to print the required number of ballots for this Project;		
2.2 Ballot paper, which shall include the provision of the needed ballot paper that shall be compatible with the proposed VCM;		
2.3 Ballot printing consumables, which shall include the provision of all consumables, including supplies and materials, necessary to print the required number of AES ballots;		
2.4 Ballot verification systems, which shall include the provision of an automated system for verification of the correctness and accuracy of the printed ballots,		

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together with the needed software, hardware, consumables, supplies and materials for the purpose;		
2.5 Ballot printing status monitoring system, which shall include the provision of an automated system for monitoring the status of ballot printing for project management purposes;		
2.6 Technical and administrative support services, which shall include the provision of the needed support services, together with the required number of technical and administrative support personnel, to effectively implement the required printing services;		
2.7 And all other goods and services necessary to print the required number of official ballots, including test, demo and training ballots.		
3. The winning bidder shall install, set up and make operational a ballot printing facility at no additional cost to COMELEC at the premises of the National Printing Office (NPO) or at the BangkoSentral ng Pilipinas (BSP), based on the schedule specified in the 2016 NLE AES timelines[14].		
3.1 For this purpose, the winning bidder shall make proper coordination with the NPO/BSP and the COMELEC Printing Committee.		
3.2 The ballot printing facility shall be equipped with the following minimum equipment, together with all the needed software to make them operational for the		

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Project, including all consumables, supplies and materials, as provided by the winning bidder at no additional cost to COMELEC:		
3.2.1 Ballot paper;		
3.2.1.1 The ballot paper shall be compatible with and shall be accepted by the VCM.		
3.2.1.2 The ballot paper shall comply with the minimum requirements of the VCM.		
3.2.1.3 The ballot paper shall be of such quality as to prevent markings on one side of the ballot to bleed through to the other side.		
3.2.2 Ballot printers;		
3.2.2.1 The ballot printers shall be able to print the ballots as required by the provider of the VCM, together with all printable security features of the ballot.		
3.2.3 Printed ballot verifiers;		
3.2.4 Barcode generators;		
3.2.5 Barcode readers;		
3.2.6 Servers;		
3.2.7 Workstations;		
3.2.8 Ballot ID and precinct ID generators;		
3.2.9 Ballot ID and precinct ID verifiers; and		
3.2.10 Security cameras;		
4. The winning bidder shall print the ballots for		

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the following activities:		
4.1 HAT;		
4.2 Laboratory test;		
4.3 PRELAT;		
4.4 field test;		
4.5 mock election;		
4.6 demo;		
4.7 training;		
4.8 FTS;		
4.9 Test Certification;		
4.10 Official ballots; and		
4.11 All rejected ballots attributable to factors that are caused by the winning bidder, its equipment and personnel, shall be charged to its expense.		
The list of number of ballots required for each activity is included in Annex ___		
5. The ballot printing system shall comply with the following minimum requirements:		
5.1 The system shall be able to readily accept as input, without manual intervention for file conversion, the EMS-generated PDF files of the ballot faces for printing purposes.		
5.2 The system shall be capable of generating and printing the required number of ballots per clustered precinct		
5.3 The system shall be able to mark or identify precinct-specific ballots separately from other precincts.		
5.3.1 The precinct-specific ballots shall		

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only be accepted by the VCM which specifically configured for that specific precinct.		
5.3.2 The precinct-specific ballot ID shall be verifiable by an automated system for the purpose.		
5.3.2.1 The winning bidder shall provide this system for verifying this precinct-specific ballot ID at no additional cost to COMELEC.		
5.4 The system shall be able to generate a unique machine identifier for each ballot printed, which shall be similar in concept to a serial number on a manual ballot.		
5.4.1 There shall be an automated way to check the unique identifier of a ballot, which may be validated by a visual or manual process.		
5.4.2 The system shall be able to re-print specifics ballots based on this unique ballot ID.		
5.5 The system shall be able to accurately and correctly print the machine-readable security features required by the AES.		
5.6 It shall make use of one or more ballot printers that shall be capable of back-to-back printing in a single pass.		
5.6.1 The bidder shall decide on the number, type and technical specifications of the needed ballot printers to deliver the ballot printing requirements within the specified time for the purpose.		
5.6.2 The bidder shall submit with its bid		

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the technical specifications of the offered printer for the purpose, together with the number of printers to be delivered for the purpose.		
5.7 For every clustered precinct of ballots printed, there shall be:		
5.7.1 A cover page indicating the province, city/municipality, barangay, clustered precinct, precinct-specific ballot ID (or precinct ID, for short) with equivalent barcode, and number of ballots[15]; and		
5.7.2 At least two (2) blank ballot papers that will divide the batch from the next clustered precinct's ballots.		
5.8 The system shall be able to print ink marks that are recognizable by the VCM.		
5.9 The system shall be able to place on the designated space on the ballot for additional visual security markings, which may not be machine-detectable, as specified by the COMELEC, the NPO, or the *BangkoSentral ng Pilipinas* (BSP).		
5.9.1 The presence of these visual security markings shall not deter the system's capability for accurate counting of votes on the ballots.		
6. The ballot verification system shall comply with the following minimum requirements:		
6.1 The system shall ensure the correctness and accuracy of each generated and printed ballot.		
6.2 The system shall verify the readability of each printed ballot by scanning the same		

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in separate VCMs which shall be configured for the purpose.		
6.2.1 The winning bidder shall provide enough number of VCMs for ballot verification to finish ballot printing verification within the specified schedule at no additional cost to COMELEC.		
6.2.1.1 These machines shall not be taken from the regular allocation of VCM as indicated in Annex J.		
6.2.2 The winning bidder shall coordinate with the winning provider of the VCM for the test configuration files to be used for this purpose.		
6.2.2.1 The winning bidder shall bear the cost for creating the ballot verification configuration, including the cost for the software, hardware and services for the purpose, if needed.		
6.3 The system shall be able to verify the intrinsic validity of each ballot, including:		
6.3.1 the verification of security markings as configured;		
6.3.2 the assignment of ballot (clustered precinct); and		
6.3.3 the uniqueness of ballot.		
6.4 The winning bidder shall provide all related equipment peripherals, consumables, supplies and materials, and technical and administrative support services that shall be needed for this purpose at no additional cost to		

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COMELEC.		
7. The Ballot Printing Monitoring System shall comply with the following minimum requirements:		
7.1 It shall use the same election data from the EMS as reference files, such as, but not limited to:		
7.1.1 List of established precincts and their corresponding clustering;		
7.1.2 The number of registered voters per established and per clustered precinct;		
7.1.3 List of cities/municipalities, provinces and regions;		
7.1.4 List of councilor districts, legislative districts, provincial districts, and ARMM regional districts or any district that may be created before 2016 elections;		
7.1.5 Number of ballots to be printed per type of ballots;		
7.2 It shall allow the record management of the status of ballots generation, together with the corresponding number of ballots, for each clustered precincts, such as, but not limited to:		
7.2.1 printed,		
7.2.2 verified,		
7.2.3 on-hold, with corresponding reason for being put on hold		
7.2.4 reprinted, with corresponding reason for reprinting, and		
7.2.5 forwarded to specific election working		

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committee or PMO group, such as:		
7.2.5.1 To Packing and Shipping Committee (PSC);		
7.2.5.2 To PMO Technology Group for testing purposes (PRELAT, field test, mock elections);		
7.2.5.3 To Training Group;		
7.3 Generate statistical reports, with listing, on the following:		
7.3.1 Number of precincts printed;		
7.3.1.1 With summary report (numbers and percentages completed) per ballot face, city/municipality, province, region;		
7.3.2 Number of precincts verified;		
7.3.2.1 With summary report (numbers and percentages completed) per ballot face, city/municipality, province, region;		
7.3.3 Number of precincts on-hold or quarantined due to lacking ballot, defect in ballot, etc.;		
7.3.3.1 With summary report (numbers and percentages affected) per ballot face, city/municipality, province, region;		
7.3.4 Summary report on Number (with corresponding percentages) of precincts printed, verified and on-hold;		
7.4 The system shall be able to generate related statistical reports:		
7.4.1 with specific listing of areas covered,		
7.4.2 indicating the province,		

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city/municipality, clustered precinct, precinct ID, number of registered voters, number of valid ballots scanned and invalid ballots scanned;		
7.5 The winning bidder shall provide all related equipment peripherals, consumables, supplies and materials, and technical and administrative support services that shall be needed for this purpose at no additional cost to COMELEC.		
7.6 The winning bidder shall turn over this system, with proper documentation on its use, management and administration, to COMELEC after the duration of the Project.		
7.6.1 The source code of the system, with proper documentation, shall also be turned over at no additional cost to COMELEC.		
7.6.2 The winning bidder shall allow COMELEC to freely use and modify the system for use in future elections.		
7.6.3 The winning bidder shall also turn over other software, including OS and DBMS, and hardware that shall be used for this purpose at no additional cost to COMELEC.		
8. The winning bidder shall provide the following related ballot printing support services to COMELEC:		
8.1 Provision of project management plan on how the printing of all ballot requirements shall be finished on time based on the		

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schedule indicated in the timelines;		
8.1.1 All activities to be undertaken by the winning bidder, such as planning, preparation, training, setting-up, execution, back-up, closing and other related activities shall be observed and approved by COMELEC.		
8.1.2 All backup data containing ballot information, together with security camera footages, shall be turned over to COMELEC at the end of the Project.		
8.1.2.1 The data shall be turned over to COMELEC in a removable storage device, with proper documentation on its contents.		
8.1.2.2 The data shall be made available in MySQL format and shall be immediately readable by COMELEC for report generation purposes.		
8.2 Provision of detailed documentation in relation to the Project, such as, but not limited to:		
8.2.1 Technical specifications and quantity of the ballot paper;		
8.2.2 Technical specifications and quantity of the ballot printer; and		
8.2.3 Technical specifications, quantity and other requirements for the ink;		
8.3 Provision of project management support to manage the entire ballot printing process and be specifically responsible for the following, among other tasks:		
8.3.1 overseeing and implementing the Ballot		

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Printing Plan;		
8.3.2 coordinating with the COMELEC Printing Committee on all related aspects of the Project;		
8.3.3 monitoring the progress and status of the ballot printing;		
8.3.4 resolution of all printing-related problems;		
8.3.5 securing the ballot printing facility;		
8.4 Provision of personnel in the printing and verification of ballots who shall be specifically responsible for the following, among other tasks:		
8.4.1 repair and troubleshooting of ballot printers and other related equipment that shall be provided by the winning bidder;		
8.4.2 installation, setting up and testing of ballot printing equipment, including servers and all workstations;		
8.4.3 training of ballot printing equipment operators and other support personnel;		
8.4.4 identification and resolution of errors that shall be found in the ballot verification procedure;		
8.4.5 operation of the ballot printing and ballot verification equipment;		
8.5 Provision of servers, workstations, security cameras, and other related consumables, supplies and materials;		
8.5.1 The technical support personnel to maintain and operate said equipment shall also be provided by the winning		

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bidder at no additional cost to COMELEC.		
9. All related requirements by the ballot printing services which are needed to make it fully operational during the entire duration of the printing process shall be included in the proposal/offer, including the software and hardware, back-up power supply, security devices such as CCTV cameras, other equipment and consumables.		
10. All supplies, materials, consumables, ballot papers that are not used shall be turned-over at no additional cost to the COMELEC.		
11. For the submission of bids, the bidder shall provide samples of all offered equipment, supplies and materials, as far as practicable. Compliance to the requirements by the submitted samples shall be supported by the submission of detailed product documentation and other related documents to verify the same.		
11.1 In lieu of an on-site demo version of the proposed equipment, the bidder may opt to present a similar installation of the equipment from a previous contract of the participating bidder may be used as for product demo to the COMELEC. For this purpose, the bidder shall submit a written certification from the concerned company of its willingness to present its equipment to COMELEC in an operational environment and to answer related questions on the same.		
11.2 With regard to an offered software application, a demo version shall be		

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presented to the BAC for evaluation or post-qualification purposes. The demo system shall be able to show availability and working functionality of all of the minimum systems specifications as required by COMELEC.		
12. All oher requirements as listed in the TOR shall be complied with by the winning bidder.		
COMPONENT 3: Ballot Boxes		
The winning bidder shall comply with the following minimum requirements for ballot boxes, and all other related goods and services for the purpose.		
1. The ballot boxes shall be fully compatible with the VCM.		
1.1 For this purpose, the winning bidder shall secure a written certification of this compatibility with the VCM supplier.		
2. The ballot boxes shall comply with the following minimum security requirements:		
2.1 The material of the ballot box shall be such that voted ballots that are being deposited therein shall be visible from the outside as falling into it.		
2.2 The material of the ballot box shall be such that the marks on the cast ballots shall not be seen from the outside.		
2.3 The ballot boxes shall have three (3) slots for the placement of one (1) security padlock each to be separately supplied by COMELEC.		
2.4 The design of the ballot box shall be such		

REQUIREMENTS / SPECIFICATIONS	**Statement of Compliance** *Just state "Comply" or "Not Comply"*	**Specific Reference** *in Bidder's Bid Supporting Statement of Compliance*
that there shall be no crack or split in the body and in the cover that may be used for getting access to the ballots inside it.		
2.5 The design of the closed ballot box shall protect its contents from water spill coming from rain.		
3. The design of the ballot boxes shall be such that:		
3.1 The above-mentioned security requirements are complied with;		
3.2 Each has a detachable cover from the body;		
3.3 The cover shall have a locking mechanism to lock it to its body;		
3.4 There shall be a mechanism to seal the ballot entry point on the ballot box cover when the VCM is not mounted on top of it;		
3.5 The VCM can be locked in place without slipping accidentally when placed on top of it;		
3.6 Each can hold up to 800 pieces of ballots;		
3.7 Twelve (12) pieces can be stacked when empty and without cover;		
3.8 Five (5) pieces can be stacked when with contents and with cover, with the padlocks placed;		
3.9 The body shall bear the logo or name of the COMELEC and shall be readily visible from the outside;		
3.10 Each can be reused for at least three (3) elections;		
3.11 each shall survive a drop test from a height of 30.0 cm;		

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4. The ballot boxes shall be turned over at no additional cost to COMELEC after E-Day.		
4.1 The ballot boxes shall be considered COMELEC property.		
5. The bidder shall provide for a prototype of the ballot box during the submission of bids.		
5.1 The bidder shall submit the design and specifications of the proposed ballot box, taking into consideration the existing guidelines on provision of physical security.		
5.2 The bidder shall submit the customizable features in the design of the ballot box.		
5.3 The final design of the ballot box for use on E-Day shall be subject to the approval of COMELEC.		
6. The winning bidder shall provide the number of ballot boxes based on the allocation requirement of the COMELEC.		
7. The winning bidder shall deliver the ballot boxes at the place to be designated by the COMELEC, based on timelines.		
8. All oher requirements as listed in the TOR shall be complied with by the winning bidder.		
COMPONENT 4: Technical Support		
Aside from the technical support requirements in all tests activities, ballot printing and verification, reverse logistics, training and public demonstration, the winning bidder shall also provide the needed technical support for FTS and E-Day with the following requirements:		

REQUIREMENTS / SPECIFICATIONS	**Statement of Compliance** *Just state "Comply" or "Not Comply"*	**Specific Reference** *in Bidder's Bid Supporting Statement of Compliance*
1. At least one (1) qualified technician for every voting center determined working hours . However in voting centers with more than five (5) machines, one (1) technician for every five (5) machines shall be provided. In case of more than 1 technician in a voting center, a technician shall be designated among them to be the overall technical supervisor for the voting center		
1.1 The technician shall have the following minimum qualifications:		
1.1.1 At least high school graduate;		
1.1.2 Not over 40 years old;		
1.1.3 With Information Technology Skills as certified by COMELEC		
1.1.4 Physically fit and can work under pressure even on extended hours;		
1.1.5 Has no derogatory record in NBI;		
1.1.6 Able to speak, read and write English or the local dialect where they will be assigned;		
1.1.7 Not related within the fourth civil degree of consanguinity or affinity to any member of the BEI serving in the same Voting Center or to any national or local candidate to be voted for in the same city or to the latter's spouse; and		
1.1.8 Has no pending case against him filed in COMELEC/court for any election offense		
1.2 The winning bidder shall provide COMELEC the complete list of technician		

REQUIREMENTS / SPECIFICATIONS	**Statement of Compliance** *Just state "Comply" or "Not Comply"*	**Specific Reference** *in Bidder's Bid Supporting Statement of Compliance*
with their complete addresses and contact numbers not later than 60 days before elections after consultation with the COMELEC.		
1.3 During the bidding, the bidder shall submit a certification that the qualifications requirements for technicians shall be provided by the winning bidder.		
2. There shall be one (1) city/municipal technical coordinator for every city/municipality who shall supervise all the technicians in all polling centers of the city/municipality.		
3. There shall be one (1) provincial technical supervisor for every province who shall supervise the city/municipal technical coordinators and the technicians in the canvassing centers.		
4. The technical support shall be responsible for the installation and pullout of the machines and peripherals, at the polling center and canvassing centers.		
5. The bidder shall submit to COMELEC its recruitment and training plans for Technical Support for approval.		
6. Replacement of technician for whatever reasons shall be at the cost of the winning bidder and at no additional cost to the COMELEC.		
7. The COMELEC has the right to reject and demand replacement of any approved hiree.		
8. The recruitment and training of technicians shall be monitored by COMELEC.		

REQUIREMENTS / SPECIFICATIONS	**Statement of Compliance** *Just state "Comply" or "Not Comply"*	**Specific Reference** *in Bidder's Bid Supporting Statement of Compliance*
9. The winning bidder shall maintain a pool of reserve trained support technicians who can readily be hired and deployed to replace technicians who resign or fail to report for duty.		
10. The winning bidder, within the same day from its knowledge through its field supervisors, report by fastest means to the Election Officer the resignation or failure to report for duty of support technicians within the latter's area of jurisdiction. The report shall be followed with a written report within twenty-four (24) hours from the initial notice.		
11. No technicians shall be deployed for actual duty by the winning bidder unless he/she has undergone the required technical training and has been certified to be qualified to perform the required functions.		
11.1 The winning bidder shall furnish the Election Officer the complete names, addresses and contact numbers of replacement technicians hired in the latter's area of jurisdiction.		
12. The COMELEC shall not be liable for the payment of technicians who resign or fail to report to duty.		
12.1 Neither shall it be obliged to pay any salary for the areas where no technicians were hired by the winning bidder.		
12.2 The winning bidder shall be penalized on the following cases:		
12.2.1 Technicians fail to report to duty; and		
12.2.2 Technicians fail to solve the technical		

REQUIREMENTS / SPECIFICATIONS	**Statement of Compliance** *Just state "Comply" or "Not Comply"*	**Specific Reference** *in Bidder's Bid Supporting Statement of Compliance*
problems reported by the BEI, in at most thirty minutes from the receipt of the report.		
13. The winning bidder shall provide the sufficient number of qualified technical support personnel to man the technical hotlines and to give solution/s to the reported problems at the NTSC. Aside from the requirement of Head, technical support who shall supervise his team, the following are the requirements for all levels of technical support required for FTS and E-Day:		
Table of Qualificiations for different levels of Technical Support, and schedule, as indicated in the TOR [under #13]		
13.1 Two (2) months before e-Day, the winning bidder shall provide for a procedures or set of rules to be followed at the NTSC by the technical support, including documentation on the possible systems problems that may encounter and the possible solutions to the problems		
13.2 The winning bidder shall submit resume of all levels of technical support which shall be approved by COMELEC two (2) months before its operation.		
13.3 All technical support and personnel at the NTSC shall sign a Non-Disclosure Agreement (NDA) before the start of NTSC operation.		
13.4 Verified reports of incorrect handling or answering of queries shall be charged as penalties to the winning bidder.		
13.5 During FTS and e-Day, the manner and		

REQUIREMENTS / SPECIFICATIONS	**Statement of Compliance** *Just state "Comply" or "Not Comply"*	**Specific Reference** *in Bidder's Bid Supporting Statement of Compliance*
frequency of reporting of the technicians to the first-level hotline operators shall be as follows:		
13.5.1 Attendance of technical support in the field;		
13.5.2 Successful installation of machines;		
13.5.3 Start of voting in specific precincts;		
13.5.4 Any irregular condition of the machine before, during and after voting;		
13.5.5 Loss of equipment, parts of equipment, or peripherals;		
13.5.6 Closing of voting;		
13.5.7 Transmission;		
13.5.8 Packing-up; and		
13.5.9 Pull-out.		
13.6 The NTSC shall be activated twenty (20) days before e-Day until fifteen (15) days thereafter, particularly for the following activities based on the timelines:		
13.6.1 Delivery of machines and electronic transmission to the polling centers and canvassing centers;		
13.6.2 Delivery of election supplies and paraphernalia, ballots and ballot boxes to the Office of the Treasurer;		
13.6.3 Final Testing and Sealing;		
13.6.4 Voting, counting and canvassing; and		

REQUIREMENTS / SPECIFICATIONS	**Statement of Compliance** *Just state "Comply" or "Not Comply"*	**Specific Reference** *in Bidder's Bid Supporting Statement of Compliance*
13.6.5 Pull-out of machines.		
13.7 NTSC operations and systems security shall be controlled by the COMELEC.		
13.7.1 All passwords or security controls of the system shall be provided and handled by COMELEC.		
14. The bidder shall submit the number of technical support personnel to be hired, and the plan for hiring, training, documentation and operational procedures;		
15. All activities to be undertaken by the winning bidder at the NTSC, such as planning, preparation, training, setting-up, execution, back-up, closing and other related activities shall be coordinated and approved by COMELEC.		
16. The winning bidder, through COMELEC, shall coordinate with the NTSC provider on the requirements for space, system, data, reporting, coordination and other related requirements.		
17. The winning bidder shall provide coordinators with field of specialization on all items above and shall submit proof of specialization such as resume, certification of expertise, certification of number of years of experience and the like and shall perform the following:		
18. Aside from the technical skills qualifications, the technical support shall support shall have the following qualifications:		
18.1 Is of good moral character		

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18.2 Has never been convicted of any election offense or any other crime punishable by more than six (6) months of imprisonment;		
18.3 Has no pending case against him filed in COMELEC/court for any election offense;		
18.4 Not related within the fourth civil degree of consanguinity or affinity to any member of the same BEI or to any candidate to be voted for or to the latter's spouse		
19. All oher requirements as listed in the TOR shall be complied with by the winning bidder.		

Conforme:

_____
Name of Company *(in print)*

_____
Name and Signature of Company Authorized Representative

_____
Date